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# **A Pragmatic Account of the Hindi Presumptive**

*Ghanshyam Sharma*

*Taking Hindi presumptive modality as a case study, this paper argues that modality is detrimental in an overall organization of the tense-aspect system in languages in which these categories are marked, although only tense and aspect categories have attracted much attention in linguistic research. The paper analyzes different usages of the future form of the Hindi verb *honā* 'to be' – both as a simple and an auxiliary verb – to ascertain its real modal meanings. Contrary to the widely-held view, this verb form may very rarely refer to situations which are to hold at a point in time subsequent to speech time, as the term 'future' may require. The paper claims that a better understanding of the role played by modality can open up a new chapter in the pragmatics of the tense-aspect system. The absence or presence of one of the tense-aspect categories in a language cannot be simply considered to be just a matter of chance. Rather, it should be an indicator of different pragmatic factors which are operational in the tense-aspect system of that language.*

## **1. Why presumptive?<sup>1</sup> – A heuristic**

Natural-language utterances consist, among others, of statements made by the speaker about entities, things, situations, phenomena, happenings or any type of human experience by which she is surrounded, which she has to confront and to which she wants to refer in order to say something significant in a natural-language communication setting. These statements, for the most part, are propositions which are employed by the speaker to assert the truth or falsity of the real properties reported therein. When the speaker engages in any human communication, she is supposed to assert the truth of the proposition, not just for the sake of making an assertion, but also to signal her agreement with it.<sup>2</sup> Furthermore, by agreeing with the truth-conditions<sup>3</sup> of the proposition, the speaker inevitably subscribes to the modal meanings of which the proposition will be a vehicle. The modal

meanings, therefore, are simply the speaker's commitment to the truthfulness of the proposition.<sup>4</sup> In other words, at times she is in a stronger position to assert the truthfulness of the proposition (for example, in the case of making an utterance of a proposition such as 'This is [a picture of] an elephant',<sup>5</sup> seeing the picture of an elephant in figure 1), for she possesses epistemic elements which are based on her first-hand knowledge.



*Figure 1*

Natural-language utterances, in addition, are made up of those propositions whose truthfulness cannot be substantiated by elements of knowledge possessed by the speaker. In such cases, the speaker finds herself not in a position to make any irrefutable claim about the truthfulness of the proposition (for example, in the case of uttering 'This is [a picture of] an elephant', upon seeing the picture of a creature in figure 2), as any utterance of it is going to be based solely on her belief, rather than on some direct knowledge of the facts reported in it.



*Figure 2*

Thus when viewing the picture of an elephant in figure 1, the speaker will be in a stronger position to make an utterance comprising the proposition 'This is [a picture of] an elephant', because the proposition will turn out to be fully corroborated by the evidence which is based on her 'knowledge'. The proposition, in addition, will be endowed with a covert modal meaning, namely 'necessity', as symbolized in (1a), i.e., 'This is necessarily [a picture of] an elephant'. The same, however, could not be said about an utterance of the same proposition, 'This is [a picture of] an elephant', if the speaker should make one upon seeing the picture in figure 2, given that

all the information she possesses would negate its veracity. An elephant, for example, for all she knows, possesses neither horns nor a sharp-edged hump nor a wagging tail. What she will be left with in such a situation is her sole belief, which would need to be substantiated by epistemic modal elements such as 'necessity' or 'possibility'. On the basis of her knowledge of other animals which may bear some resemblance to the strange creature in figure 2, she would probably be in a position to make an utterance which comprises a proposition such as 'Possibly/Probably this is [a picture of] an elephant.' One should, however, notice that in making such an utterance she will be in a doubtful epistemic state, and, consequently, not able either to assert the proposition, 'This is [a picture of] an elephant', or to negate it, 'This is not [a picture of] an elephant'. Hence it will be considered to be based on her belief substantiated by epistemic 'possibility' only.

Many natural languages, like Hindi, employ a subjunctive mood to express such epistemic possibility beliefs, as symbolized in (1d). There can be another epistemic state in which the speaker's utterance of the above mentioned proposition can be thought to carry her belief substantiated by a modal 'necessity' rather than modal 'possibility'. For example, being aware of possible physical differences that one might encounter among different races of elephants which inhabit geographically distant places on the globe, she could probably also make an utterance consisting of a proposition such as 'This must be [a picture of] an elephant'. Although such an utterance, as the one in the previous case, would still be based on the speaker's belief rather than knowledge, it will, unlike the previous case, carry an epistemic 'necessity' instead of an epistemic 'possibility', as symbolized in (1b). In other words, although some of the physical distinctions displayed by the strange creature in figure 2 will not allow her to associate it definitively with an elephant, its many other characteristics that resemble those of an elephant, rather than that of any other known creature, will provide her with reasonable evidence or assumptions lending probability to her belief to link it to the elephant – the only creature with similar characteristics that she is aware of! A 'presumptive', therefore, can be conceived of as a type of epistemic modality<sup>6</sup> which is employed by the speaker to convey her 'necessary beliefs'. There is a fundamental difference between the epistemic state of a subjunctive and that of a presumptive which, alas, has not been clearly maintained in grammar books. The presumptive, as a consequence, can be seen as being classified, together with the subjunctive, as a mood or a tense which is supposed to express doubts, uncertainty, etc.<sup>7</sup> A subjunctive mood, as pointed out above, is employed to convey the epistemic state which has its origin in the 'possibility' of a 'belief'. A presump-

tive, on the other hand, carries the speaker's 'necessary' beliefs. Along the lines of this heuristic process of combining different epistemic modals, it seems reasonable to propose yet another epistemic category which can be considered to be based on the speaker's knowledge and to carry epistemic 'possibility' (i.e., knowledge of a possibility). In order to account for the different epistemic states explored above through our heuristic method, we used a slightly revised<sup>8</sup> version of the notation popularized by Hintikka (1962). Following the symbolism, the overall picture of epistemic modality can be represented through different possible combinations of epistemic modal elements in the following manner:

- (1) a.  $K\Box p$
- b.  $B\Box p$
- c.  $K\Diamond p$
- d.  $B\Diamond p$

The epistemic categories formalized in (1a) and (1c) are cases of utterances made by the speaker on the basis of her 'knowledge'. They can be deemed to belong to the same type from this point of view. The difference between them can be seen in terms of their modal meanings only: the first one carries modal 'necessity', the second modal 'possibility'. The semantical 'knowledge' of the speaker in the case of (1a) forms the basis for expressing epistemic 'necessity'. In other words, for all she knows, the proposition  $p$  is necessarily true, and it is not possible that not- $p$  (i.e.,  $\neg\Diamond\neg p$ ). The category in (1c), although based on the speaker's 'knowledge', is meant to carry the meaning of modal 'possibility' instead of 'necessity'. It can be conceived of as an epistemic category which means that, for all the speaker knows, the facts reported in  $p$  are possibly true. The category, therefore, is employed to indicate an anomalous situation, as one cannot know things which are inexistent, yet possibly true. In this sense, it seems to be a case of alethic modality rather than of epistemic category.<sup>9</sup> This modal meaning is concerned with eventualities and thus not normally grammaticalized in natural languages. In order to understand the real application of this modal category we could think of situations such as the following one: 'I know that it is possible that it will rain in Venice tomorrow'. Needless to say, such an utterance ends up in the category of beliefs since one cannot, at the time of utterance, know that it will rain in Venice tomorrow. If we have to stick to the real meaning of 'possible knowledge', we will have to imagine

a modal situation such as this one: ‘I know that [it is possible that] it may rain in Venice anytime’ which is an example of an eventuality, and not a modal possibility of rain in Venice at a particular time on a particular day. The epistemic categories abbreviated in (1b) and (1d), on the other hand, are based on speaker’s belief rather than her ‘knowledge’. The category in (1b), for example, means that, her no-knowledge of  $p$  notwithstanding, the speaker nonetheless believes that necessarily  $p$  and thus her belief is that it is not possible not- $p$  (i.e.,  $\neg\Diamond\neg p$ ). The category in (1d), on the contrary, is employed by the speaker to express a belief based on ‘possibility’, and thus means that, given that she does not know it to be the case, she believes that possibly  $p$ , and that it is not necessarily not- $p$  (i.e.,  $\neg\Box\neg p$ ). In conclusion, then, the presumptive can be considered to be a type of epistemic modality – the category represented in (1b) – i.e.,  $B\Box p$ .

Some languages grammaticalize this category either morphologically or by other grammatical devices, while others make use of modals, as is the case with the English language. It is, however, an indispensable means of expressing the speaker’s ‘necessary beliefs’, which are different from ‘necessary knowledge’ (i.e.,  $K\Box p$ ), on the one hand, and from ‘possible belief’ (i.e.,  $B\Diamond p$ ), on the other.

## 2. Presumptive: a tense or a type of modality?

Verb forms in a language may express different qualities, among which tense, mood and aspect (TMA hereafter) are the most inter-related since they all concern the event or action denoted by the verb. However, there is no known example of a language in which TMA qualities are encoded – distinctly and universally – throughout the structure of the language. Some languages have grammatical devices to mark one category but not the other. Other languages employ the same grammatical device to mark two or even three categories together. Most of the studies on TMA categories have, consequently, diverged on different levels because in the absence of one the others can be conceived of as the marker of the default meaning of the first. Among these, since time is an essential part of human cognition, tense is obviously the most widely discussed and commonly known notion in language. The present paper argues that, although grammatical tense seems to occupy the most important hierarchical position among the three, as it is related to the most evident category – time – it is modality (or grammatical mood for that matter) which is responsible for an overall organization of TMA categories in the system of a language. According to

Comrie, tense is deictic and “relates the time of the situation referred to some other time”, i.e., to a deictic centre, usually the time of speaking (1976: 1–2). If we stick to the original insight provided by Reichenbach (1947: 287–298) that tense and aspect involve three time references (Event time, Speech time and Reference time), three simple tenses can be represented in the following manner:<sup>10</sup>

- (2) a. Past tense      E,R—S
- b. Present tense   E,R,S
- c. Future tense    S—E,R

This obviously and overtly simple division between different tenses, however, is not incontrovertible. Firstly, if we stick to the category of pure tense, we can theoretically have three types of tenses only; the past, the present and the future, as all other tense types are obtainable solely through an inevitable combination of the above three along with other grammatical aspects. Furthermore, even these three seemingly pure types of tenses are hardly ever employed without some inherent elements of aspect, since, as mentioned above, they inevitably acquire a default aspectual interpretation in the absence of any evident aspect marker. For example, a past tense verb form, even without a perfective marker, by default, tends to acquire a perfective-aspect interpretation if it does not carry any imperfective marker. Similarly, a verb form without a perfective-aspect marker tends to acquire a default ‘imperfective’ interpretation, even if there is no marker of imperfectivity attached to it. Or else, a pure aspectual category may by default give an interpretation similar to tense. The so-called aoristic past in Hindi, for instance, is a tense with no marker of past tense at all.<sup>11</sup> It acquires by default a past-tense interpretation since, in the absence of a tense marker, a perfective aspect refers to a situation which obviously should have taken place prior to the time of speech. Secondly, whereas past and present tenses are concerned with events or actions that have either taken place already or take place contemporaneously with the utterance, the future tense is concerned with an event or action which is subsequent to the present moment or yet to happen.<sup>12</sup> This characteristic makes the former two completely distinct from the latter: the situations denoted by past and present concern real events or actions and, therefore, are based on the speaker’s epistemic knowledge, whereas the situation denoted by a future tense concerns actions or events that may or may not happen at the time referred to in the sentence, and hence it originates from the speaker’s beliefs only. It is because of this special nature of the future tense that its real

status has been questioned in different languages, including English.<sup>13</sup> As stated above, the TMA categories are inter-related and, therefore, none of them can be considered independent of the others, since the presence or absence of one category is destined to give rise by default to interpretations which can be linked to other categories. We argue, nonetheless, that an overall organization of TMA elements in a natural language is determined by modality, although not all languages mark it overtly. The presumptive, therefore, is not a category of tense but a type of modality, and is employed by the speaker to convey ‘epistemic necessity’ based on her ‘belief’ rather than her ‘knowledge’. The future form of the auxiliary which is generally employed to express this modality<sup>14</sup> has no future time reference at all in these situations. In other words, whereas a future tense may induce an implicature<sup>15</sup> that the situation described in it does not hold at the time of speaking, the future form used to express presumptive modality does not carry any such implicature at all. It indicates situations in which events or actions are either contemporaneous with or have already taken place at the time of speech. As a consequence, we believe that modal elements have to be incorporated into any model that intends to analyze tense and aspect. The Reichenbachian model has been elaborated and revised by different authors (Hornstein 1990: 117; Giorgi, and Pianesi 1999: 29) to include different combinations of tense and aspect.<sup>16</sup> As will be discussed in the following sections, there are four tense-aspect combinations in Hindi which can express presumptive modality. In order to give an account of their modal meaning, it is necessary to add the modal element to the Reichenbachian notation (Reichenbach 1970: 290). It is possible to incorporate the necessary belief (i.e.,  $B \Box p$ ) element in the Reichenbachian notation which intends to describe tenses by representing three points, namely, *point of speech* (S), *point of the event* (E) and *point of reference* (R). With this added modal element, four tense-aspect combinations in Hindi will have the following form:

- |     |                                  |            |       |
|-----|----------------------------------|------------|-------|
| (3) | a. Presumptive without an aspect | $B \Box$ : | S,R,E |
|     | b. Habitual Presumptive          | $B \Box$ : | S,R,E |
|     | c. Progressive Presumptive       | $B \Box$ : | S,R,E |
|     | d. Perfective presumptive        | $B \Box$ : | E—S,R |

According to this formalism, (3a), (3b) and (3c) all stand for “the speaker believes that the event necessarily referred to a point in time which is contemporaneous with speech time.” The main difference among these three can be thought to be aspectual only. (3d) indicates that “the speaker be-



believes that necessarily the action or event reported has come to an end at speech time.”

### 3. Presumptive modality in Hindi

Hindi belongs to the group of languages which exhibit TMA categories quite systematically. It employs verbal auxiliaries to mark tenses, and encodes grammatical aspects through different morphological devices such as aspectual suffixes on the root or an extra verbal item. The presumptive modality in Hindi is expressed by the future form<sup>17</sup> of the auxiliary *honā* ‘to be’. Although, it has been classified as a marker of the future tense by some grammarians,<sup>18</sup> when employed as a helping verb, it generally refers to situations which have either taken place already or are to be held at a time contemporaneous with speech time. When used as either a single verb without an aspect or with a marker of progressive aspect, it can in addition have a reference to a time subsequent to the speech time. While analyzing the Hindi presumptive, we will try to show that modality should serve as a basis for understanding the logic behind the systematic organization of TMA system in Hindi.

#### 3.1. Presumptive without an aspect

As stated above, one of the most common functions of the future form of the Hindi verb *honā* ‘to be’ can be seen in the domain of presumptive modality. In such cases, it is employed to refer to a situation that is to hold at a point in time which is not subsequent to, but contemporaneous with the moment of speech. For example, the situations referred to in (4) and (5) may hold at any point in time, i.e., at a point in time either prior to, or contemporaneous with, or subsequent to speech time. When referring to a prior time it means that the state of affairs reported in it was true at the time of speech prior to speech time. The sentence in (4) may thus, depending on the time reference, carry the following modal meaning: although the speaker does not know the real age of Ramu, she, nonetheless, believes that Ramu must be twenty years old at a point in time in the past, the present or the future. Similarly, in (5) the speaker does not know, but believes that on the basis of her assumptions Ramu must then be/ have been in the kitchen in the past, now or in the future. In terms of modality all these cases, however, carry the same epistemic necessity based on the speaker’s belief.

- (4) *rāmu kī umr [tab/ ab/ kal] bīs*  
 Ramu-M of-F age-F [then<sub>past</sub>/ now/ tomorrow] twenty  
*sāl hogī.*  
 years FUT-F-SG<sup>19</sup>  
 ‘Ramu must be twenty years old [then (past)/ now/ tomorrow].’
- (5) *rāmu [tab/ ab/ kal] venis mē hogā.*  
 Ramu-M [then<sub>past</sub>/ now/ tomorrow] Venice in FUT-M-SG  
 ‘Ramu must be in Venice [then (past)/ now/ tomorrow].’

### 3.2. Presumptive with aspect

In addition to the above mentioned usages as a simple verb, the future form of *honā* ‘to be’ is also employed as an auxiliary verb to express presumptive modality in combination with different aspectual markers attached to the root of the verb. The exact number of aspects in Hindi has been controversial, as authors have not kept the difference between grammatical aspect and lexical aspect (or *Aktionsart*) clear, and have consequently tried to classify even ‘telic’ and ‘atelic’ aspects as grammatical aspects.<sup>20</sup> For the purpose of a discussion on modality in examples with aspectual markers in Hindi, we do not consider it necessary to enter into the debate to settle the exact number of aspects in Hindi. For the present purpose it will suffice to analyze some of the aspects only. The presumptive in Hindi can be seen in imperfective (both habitual and progressive), and perfective aspects, as well as some other less commonly discussed aspects.<sup>21</sup>

#### 3.2.1. Presumptive with imperfective aspect

Generally, all ‘non-perfective’ aspects can be included in the category of imperfective, even though they are not imperfective in the same sense. Along these lines, habitual, progressive, continuative, and frequentative may all come under the umbrella term ‘imperfective’, although they cannot be considered to carry the same ‘imperfectivity’ in the same manner. Habitual aspect is considered an imperfective aspect since it expresses the occurrence of an event or state as a characteristic of a period of time. In other words, it indicates a situation in which actions or events take place as a daily routine. Progressive aspect is a continuous aspect that expresses processes, not states. The continuative can be considered as a subcategory of the progressive, indicating states rather than processes. It may also indi-

cate a continuous state of a process. The frequentative, on the other hand, indicates a frequency of actions completed on different occasions rather than a continuous action. Both habitual and frequentative, therefore, should be considered imperfective in the sense that they indicate a series of different actions rather than just one single action.

### 3.2.1.1. Habitual aspect

This class of examples has rightly been described as ‘presumptive habitual’ by some authors<sup>22</sup> since the imperfective form of the main verb in these examples marks a habitual aspect, whereas the future form of the auxiliary *honā*, ‘to be’, which follows the main verb, carries presumptive modality, as in (6). The imperfective aspect in this case is indicated by the suffix *-t* on the root of the verb. The future form of the auxiliary, however, can only have reference to a point in time which is either prior to or contemporaneous with speech time. It can never refer to a situation with future reference, as will be clear from the double question marks before the time adverbial ‘next year’ which makes it pragmatically anomalous:

- (6) *rāmu* [pichle sāl/ ājkal/ ??agle sāl] *bahut ām*  
 Ramu-M [last year/ these days/ next year] much mango  
*khātā hogā.*  
 eat-IMPFV-M-SG FUT-M-SG  
 ‘Ramu must be eating a lot of mango [last year/ these days/ ??next year].’

### 3.2.1.2. Progressive aspect

Progressive (or continuous<sup>23</sup>) is another class of imperfective aspect in Hindi, and is marked by the root of *rahnā* ‘to stay’. Presumptive modality can exhibit this aspect by attaching the future form of the auxiliary *honā* ‘to be’ to it. However, unlike the presumptive in habitual aspect, the presumptive progressive can refer to all three kinds of situations. It may refer to situations whose state of affairs were true at a point in time prior to, are true at a point contemporaneous with and will be true subsequent to the moment of speech, as in (7), although with certain verbs its reference to a future point in time is anomalous, as in (8).

- (7) *rāmu* [tab/ ab/ kal] *venis mē ghūm*  
 Ramu-M [then<sub>past</sub>/ now/ tomorrow] Venice in walk  
*rahā hogā.*  
 PROG-M-SG FUT-M-SG  
 ‘Ramu [must have been walking then/ must be walking now/ must be walking tomorrow] in Venice.’
- (8) *rāmu* [un dinō/ ājkal/ ??agle sāl] *bhārat mē bahut*  
 Ramu-M [those days/ nowadays/ next year] India in much  
*ām khā rahā hogā.*  
 mango eat PROG-M-SG FUT-M-SG  
 ‘Ramu [must have been eating a lot of mango last year/ must be eating a lot of mango these days/ ??must be eating a lot of mango next year] in India.’

### 3.2.1.3. Continuative aspect

The term ‘continuative’ is used to refer to a kind of verbal aspect which indicates a continuous state of action. In this sense it belongs to the category of imperfective rather than perfective as it does not indicate completion of the action, although it does not indicate an un-ending state of the action either. The imperfective participle of the verb is followed by the continuative auxiliary *rahnā* ‘to stay’ and the future form of *honā* ‘to be’ which marks the presumptive modality. Also in this aspect the presumptive marker may not refer to situations whose state of affairs will be true at a time subsequent to the speech time.

- (9) *rāmu* [un dinō/ ājkal/ ??agle sāl] *das*  
 Ramu-M [those days/ nowadays/ next year] ten  
*baje tak sotā rahtā hogā.*  
 o’clock until sleep-IMPFV-M-SG CONT-M-SG FUT-M-SG  
 ‘Ramu must be used to continue sleeping until 10 o’clock those days/ these days/ ??next year.’

### 3.2.1.4. Frequentative

Presumptive modality can be expressed with a frequentative aspect as well. In this case, the frequentative aspect seems to belong to the territory of the

habitual and thus by nature to be an imperfective. In certain contexts frequentative and habitual can be used interchangeably, although they differ in meaning quite significantly. A verb expressing the frequentative meaning, *karnā* ‘to do’, follows the perfective participle of the main verb. Given that it is an imperfective, the frequentative marker can have all aspects except perfective.<sup>24</sup> Its use in presumptive modality, however, is restricted to past and present reference only. Its reference to a future state of affairs is anomalous, as will be clear from (10):

- (10) *rāmu* [un *dinō/ ājkal/ ??agle sāl*] *roz* *ghumne*  
 Ramu-M [those days/ nowadays/ next year] everyday stroll-OBL  
*jāyā* *kartā* *hogā*.  
 go-PFV-M-SG FREQ-IMPV-M-SG FUT-M-SG  
 ‘Ramu [those days/ nowadays/ ??next year] must be used to going to the park daily.’

### 3.2.2. Presumptive with perfective aspect

The presumptive modality can frequently be seen in examples showing a perfective aspect. A perfective aspect in Hindi is obtained by a *-V* suffixed on the verb.<sup>25</sup> This vowel displays concord according to the gender and number. In the sense of presumptive modality, the perfective aspect may refer to situations or events which either have taken place prior to, or take place contemporaneously with, speech time. However, with presumptive meaning it is not generally employed to indicate those actions or events which are to hold at a future point in time, as can be seen in (11), where a time reference ‘tomorrow’ makes the sentence anomalous, if not totally ungrammatical. An augmented perfective aspect in some cases requires the use of a compound verb instead of a simple verb which is obtained by adding a vector verb to the root of the main verb. This vector verb carries elements of verbal concord, as is the case in (12). Here, however, it can describe situations which hold at a point in time subsequent to speech time.

- (11) *rāmu* [*kal/ āj/ ??kal*] *zarūr* *venis*  
 Ramu-M [yesterday/ today/ tomorrow] certainly Venice  
*gayā* *hogā*.  
 go-PFV-M-SG FUT-M-SG  
 ‘Ramu must have gone to Venice [yesterday/ today/ ??tomorrow].’<sup>26</sup>

- (12) *rāmu ne [tab tak/ ab tak/ tab tak] apnā*  
 Ramu-M ERG [by then<sub>past</sub>/ by now/ by then<sub>future</sub>] his-REFL  
*kām pūrā kar liyā hogā.*  
 job-M complete do take-PFV-M-SG FUT-M-SG  
 ‘Ramu must have finished his job by [then (past)/ now/ then (future)].’

### 3.3. Presumptives in the passive voice

The presumptive modality can be seen throughout the verbal paradigm in Hindi, including the passive voice. In the passive voice it can exhibit the habitual, progressive and perfective aspect, as in (13), (14) and (15), but not the frequentative and continuative, as both indicate the state of the speaker rather than an action. It may also appear in a passive<sup>27</sup> verb with inceptive aspect, as in (16). It may express presumptive modality referring to situation in the past and present but not future. Its use with the progressive aspect, however, can have a future reference, as can be seen in (14).

- (13) [*un dinō/ ājkal/ ??agle sāl*] *bhārat mẽ bahut ām*  
 [those days/ nowadays/ next year] India in much mango  
*khāe jāte hōge.*  
 eat-PFV-M-PL PASV-IMPFV-M-PL FUT-M-PL  
 ‘A lot of mangos must be eaten (habitually) in India [those days/ nowadays/ ??next year].’
- (14) [*tab/ ab/ tab*] *rasoī mẽ dāl*  
 [then<sub>past</sub>/ now/ then<sub>future</sub>] kitchen in lentils-F-SG  
*banāī jā rahī hogī.*  
 cook-PFV-F-SG PASV-ROOT PROG-F-SG FUT-F-SG  
 ‘In the kitchen lentils must be under preparation [then (past)/ now/ then (future)].’
- (15) [*kal/ āj/ ??kal*] *dāl banāyī*  
 [yesterday/ today/ tomorrow] lentils-F-SG cook-PFV-F-SG  
*gayī hogī.*  
 PASV-PFV-F-SG FUT-F-SG  
 ‘Lentils must have been cooked [yesterday/ today/ ??tomorrow].’

- (16) [*tab/ ab/ ??tab*]                      *sūraj*                      *dikhne*  
 [then<sub>past</sub>/ now/ then<sub>future</sub>] sun-M-SG appear-OBL  
*lagā*    *hogā*  
 INCE-PRF-M-SG FUT-M-SG  
 ‘The sun must have begun to be visible then (past)/ now/ ??then (future).’

#### 3.4. Presumptive in rhetorical usages

The presumptive modality is also frequently used in those expressions which can be classified as ‘rhetorical’ usages. In such cases the future form of *hona* ‘to be’ does not refer to a future point in time but rather to a general situation that might hold in the present. We believe that such utterances are fundamentally based on a type of conditional argumentation. Roughly, its reasoning can be paraphrased in the following way: ‘although the speaker does not believe that  $\square p$ , even if it is the case that  $\square p$ , then  $q$ . Needless to say, the utterance is based on a modal meaning.

- (17) *hogā*                      *vah*                      *paise vālā,*                      *mujhe*                      *kyā*                      *lenā-denā.*  
 FUT-M-SG he                      rich                      I-DAT-OBL what concern-M-SG  
 ‘He may be rich, it doesn’t concern me.’

As stated above, this usage of the future form of *honā* ‘to be’ cannot have any reference to the situation which holds true at a moment subsequent to speech time. It can therefore be yet further proof that the form has been wrongly classified in the class of future tense.

#### 3.5. Presumptive with a reference to past, present and future

As discussed above the future form of *honā* ‘to be’ is the marker of presumptive modality in Hindi, and generally refers to those situations in which actions or events have either taken place already or are under way. The same form with different aspectual meanings can also be employed to refer to situations in which events or actions have a reference to past time, i.e., a point in time prior to speech time. Only in cases in which this form is employed either as simple verb or in association with the progressive aspect, can it refer to situations in which actions or events may have reference to a point in time subsequent to the moment of speech. Such use, however, should be judged as a case of presump-

tive modality rather than future tense, as its truth-conditions cannot be verifiable. The fact that the future form of *honā* ‘to be’ can be employed to refer to situations in which the actions or events take place at a moment different from the subsequent should provide yet further proof of its being a marker of modality, rather than of the future tense. The ample data discussed above will suffice to prove that the future form of *honā* ‘to be’ is employed in Hindi mainly to express presumptive modality, rather than to indicate a future situation in which actions or events hold at a point in time that is subsequent to the time of speech. Even when it is used to indicate actions or events likely to take place at a future point in time, it carries the speaker’s ‘necessary beliefs’ which are either in anticipation of events to come or based on the assumption that the action referred to in the utterance will necessarily be carried out by the agent – a clear case of ‘necessary belief’. A comprehensive picture of various modal usages of the future form of the Hindi verb *honā* ‘to be’ is presented in the following table 1:

*Table 1.* Classification of various uses of the future form of the Hindi verb *honā* ‘to be’ according to the different points in time they may refer to. The occurrence of it in the future with progressive aspect is limited to certain verbs only. The asterisc indicates its inapplicability to certain verbs.

| Verb <i>honā</i>              | Past  | Present | Future |
|-------------------------------|-------|---------|--------|
| Time of the action/event      | E,R—S | E,S,R   | S—R,E  |
| <i>Active voice</i>           |       |         |        |
| (1) As a main verb            | Yes   | Yes     | Yes    |
| (2) With habitual aspect      | Yes   | Yes     | No     |
| (3) With progressive aspect   | Yes   | Yes     | Yes*   |
| (4) With continuative aspect  | Yes   | Yes     | No     |
| (5) With frequentative aspect | Yes   | Yes     | No     |
| (6) With Perfective aspect    | Yes   | Yes     | No     |
| <i>Passive voice</i>          |       |         |        |
| (1) As a main verb            | ----  | ----    | ----   |
| (2) With habitual aspect      | Yes   | Yes     | No     |
| (3) With Progressive aspect   | Yes   | Yes     | Yes    |
| (4) With continuative aspect  | Yes   | Yes     | No     |
| (5) With Frequentative aspect | Yes   | Yes     | No     |
| (6) With Perfective aspect    | Yes   | Yes     | No     |

It becomes evident from the distributional situation of the future form of *honā* ‘to be’, as shown in table 1, that it can very rarely be employed to refer to situa-



tions in which actions or events are to hold at a point in time subsequent to speech time, although it can appear in the progressive aspect and in cases where it is used as a simple rather than an auxiliary verb. However, even in those cases where it does have a future reference, it carries an epistemic belief of the speaker. Furthermore, its combination with the perfective aspect in Hindi is not to be confused with the future perfect of English. From the discussion above we can conclude that the future form of the Hindi verb *honā* ‘to be’ is the marker of presumptive modality rather than of the future tense.

#### 4. Scalar meaning of presumptive modality

As has been demonstrated elsewhere (Sharma 2002), Hindi auxiliaries, in addition to relating situations indicating events or actions to a deictic center, also carry modal meanings which are compositional. Recollect that three out of four epistemic categories established through our heuristic argument in (1), namely  $K\Box p$ ,  $B\Box p$ , and  $B\Diamond p$ , are systematically encoded, respectively by the *hæ*, *ho* and *hogā* forms of the Hindi auxiliary, whereas the category  $K\Diamond p$ , i.e., ‘possible knowledge’, can be considered to be an alethic category, and is conveyed by the modal verb *saknā* ‘be able to, can’. We argue that such forms of auxiliary are employed in Hindi primarily to encode epistemic modalities. Further research into the pragmatics of the Hindi TMA system can reveal many complexities which remain unresolved. For a better understanding of the TMA system in Hindi, we believe, the above mentioned epistemic categories should also be included in glosses, as in (18), (19), (20) and (21), as the different forms of Hindi auxiliary does not always refer to a point in time they are considered to refer:

(18) *vah cor {hæ/ ho/ hogā}*  
 he thief { $K\Box$ -PRES-3-SG/  $B\Diamond$ -SUBJ-3-SG/  $B\Box$ -FUT-3-M-SG}  
 ‘He {is/ may be/ must be} a thief.’

(19) *vah roz nahātā*  
 he everyday shower-IMPV-M-SG  
 {*hæ/ ho/ hogā*}  
 { $K\Box$ -PRES-3-SG/  $B\Diamond$ -SUBJ-3-SG/  $B\Box$ -FUT-3-M-SG}  
 ‘He {takes/ may be taking/ must be taking} a shower everyday.’

(20) *vah ab so rahā*  
 he now sleep PROG-M-SG

- {*hæ/ ho/ hogā*}
- { $K_{\square}$ -PRES-3-SG/  $B_{\diamond}$ -SUBJ-3-SG/  $B_{\square}$ -FUT-3-M-SG}
- ‘He {is/ may be/ must be} sleeping now.’
- (21) *usne āj ām khāyā*  
 he-OBL-ERG today mango-M-SG eat-PFV-M-SG  
 {*hæ/ ho/ hogā*}
- { $K_{\square}$ -PRES-3-SG/  $B_{\diamond}$ -SUBJ-3-SG/  $B_{\square}$ -FUT-3-M-SG}
- ‘He {has/ may have/ must have} eaten a mango today.’

Now, if we look into the inter-relationship that holds among the three forms, we notice that they express their internal scalar positions as well. By mapping their hierarchical modal meanings on the traditional square of opposition, it is possible to understand their internal organization. For instance, on the Square of Opposition<sup>28</sup> in figure 3, the *hæ* form of the auxiliary should occupy corner A, whereas the *ho* form occupies corner I, as they are meant to carry modal necessity (i.e.,  $K_{\square}p$ ) and modal possibility (i.e.,  $B_{\diamond}p$ ), respectively. Their scalar position on the pragmatic scale is detrimental in the implicatures they are deemed to induce. The meaning of a scalar linguistic item *A* in a linguistic context *C* depends not only on what *A* means both universally (i.e., in all linguistic context) and specifically (say, in context *C*), but also upon what another scalar item, say *B*, could have meant had it been used instead (Horn 1989, Levinson 2000, Hirschberg 1991). Scalar implicatures can play a fundamental role in characterizing modal meanings of tense and aspect.<sup>29</sup>

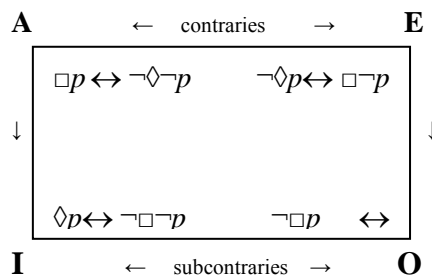


Figure 3. On the traditional square of opposition **A** and **E** are stronger than their counterpart **I** and **O**. **A** entails **I**, and both are on the positive (**Affirmo**) side, whereas **E** entails **O**, and both are on the negative (**nEgO**) side. **A** and **O**, and **E** and **I** are contradictory (meaning they cannot both be true, nor can they both be false). The relation between **I** and **O** has been controversial over the ages, but has found its proper use in pragmatics now.

It is therefore possible to understand the pragmatic scalar meaning these categories are supposed to implicate conversationally. On the square of opposition the corner **A** items are stronger than the corner **I** items. In fact, **I** is entailed by **A**. Thus, making an utterance of an item from corner **I** induces an implicature which is tantamount to the modal meaning, namely, that the speaker does not know, but believes that it is not necessarily the case that  $p$ . For instance, by selecting a weaker term from the pragmatic scale that occupies the corner **I**, e.g. form *ho* of the auxiliary, the speaker implicates that she is not in a position to make an utterance of the stronger item, i.e. the form *hæ* which sits on the corner **A**. If she had known the state of affairs reported in the utterance with certainty, she would have made an utterance using the item from corner **A**. As will be shown later, such an implicature is cancelable by attaching either a canceling or a suspending phrase. If we turn now to the presumptives, we notice that their epistemic position comes between indicatives and subjunctives, since they carry modal necessity (i.e.,  $\Box p$ ) rather than modal possibility (i.e.,  $\Diamond p$ ), as in (22b), while on the other hand, they are based on the speaker's 'belief' rather than 'knowledge', as can be seen in (22a). On the scale of semantic strength presumptives are therefore weaker than indicatives, but stronger than subjunctives. Their respective positions on the pragmatic scale can be explained in the following manner:

- (22) a.  $\langle K\Box p, B\Box p \rangle$   
 b.  $\langle B\Box p, B\Diamond p \rangle$

As can be seen from the square of opposition in figure 3, indicatives (i.e.,  $\Box p$ ) sit on corner **A**, whereas subjunctives (i.e.,  $B\Diamond p$ ) on corner **I**. The same hierarchical epistemic relationship can be established between presumptives and subjunctives, although they both are based on 'belief' rather than 'knowledge'. Presumptives carry epistemic necessity (i.e.,  $\Box p$ ), thus must occupy corner **A**, whereas subjunctives occupy corner **I**, as in (22b). As far as the relationship between indicatives and presumptives is concerned, we notice that, although from the point of view of their epistemic strength they seem to occupy the same position **A** on the semantic scale, as both carry epistemic necessity, from the point of view of 'knowledge' and 'belief' elements, presumptives are on the lower level **I** with respect to indicatives, since indicatives are on the higher **A**, as in figure 4. It has been argued that natural language categories may or may not bear a close resemblance to their logical counterparts, thus making it necessary to use the logical tools with cau-

tion to deal with complexities of natural language category. Hence the combination of modal categories becomes essential to show the strength these categories seem to possess on the semantic scale:  $\langle K\Box p, B\Box p, B\Diamond p \rangle$

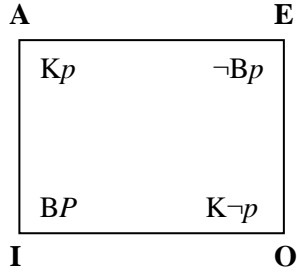


Figure 4.

In order to ascertain that neither indicatives nor presumptives carry epistemic possibilities, it is sufficient to observe the pragmatic anomalies such categories are likely to have in the presence of an epistemic possibility marker, such as ‘it is possible that’ in English. For instance, the Hindi examples (23) through (26) all contain an element of epistemic possibility, i.e. the phrase *ho saktā hae ki* ‘it is possible that, possibly’. We notice that this added element renders the use of *hae* and *hogā* auxiliaries anomalous, since none of them expresses epistemic possibility – a semantic quality required by the former. As an utterance must carry the same epistemic modal meaning universally, *hae* and *hogā* auxiliaries come into conflict with the epistemic element ‘it is possible that’. The auxiliary which carries epistemic possibility, namely *ho*, is the only possible option in this context:<sup>30</sup>

- (23) *ho saktā hae ki vah cor*  
 it is possible that he thief  
 {??hae/ ho/??hogā}  
 {K $\Box$ -PRES-3-SG/ B $\Diamond$ -SUBJ-3-SG/ B $\Box$ -FUT-3-M-SG}  
 ‘Perhaps he {??is/ may be/ ??must be} a thief.’
- (24) *ho saktā hae ki vah roz nahātā*  
 it is possible that he everyday shower-IMPFV-M-SG  
 {??hae/ ho/??hogā}  
 {K $\Box$ -PRES-3-SG/ B $\Diamond$ -SUBJ-3-SG/ B $\Box$ -FUT-3-M-SG}

‘It is possible that he {??takes/ may be taking/ ??must be taking} a shower everyday.’

- (25) *ho saktā hæ ki vah ab so rahā*  
 it is possible that he now sleep PROG-M-SG  
 {??hæ/ ho/ ??hogā}  
 {K□-PRES-3-SG/ B◊-SUBJ-3-SG/ B□-FUT-3-M-SG}  
 ‘It is possible that he {??is/ may be/ ??must be} sleeping now.’

- (26) *ho saktā hæ ki usne āj ām*  
 it is possible that he-OBL-ERG today mango-M-SG  
*khāyā* {??hæ/ ho/ ??hogā}  
 eat-PFV-M-SG {K□-PRES-3-SG/ B◊-SUBJ-3-SG/ B□-FUT-3-M-SG}  
 ‘It is possible that he {??has/ may have/ ??must have} eaten a mango today.’

Having seen the semantic acceptability of the three forms in the presence of an epistemic possibility element, let us now try to check their semantic position with an added epistemic element which carries a modal ‘necessity’. Now, if we add a Hindi phrase such as *māe jāntā hū ki*, ‘I know that’, to an utterance, we notice that only the *hæ* form of the auxiliary is fully acceptable – as it is in a harmonious relationship with the epistemic necessity element in the added phrase. The semantic situation of the form *hogā*, however, is ambiguous as, on the one hand, it carries a ‘belief’ element which assigns it a lower position on the semantic scale, while, on the other, it carries a modal necessity element that puts it on a higher position. For instance, the examples in (27), (28), (29) and (30) contain an added epistemic necessity element and therefore accept the *hæ* form in all contexts. The use of auxiliary *ho* (which expresses B◊*p*) would make the sentence semantically anomalous. The use of the form *hogā*, however, will show a lower degree of unacceptability because, as said above, its position can be considered ambiguous as it carries a necessary belief. The ambiguity in the situation of the *hogā* form can disappear, if we substitute the ‘necessary knowledge’ element (*māe jāntā hū ki*) with a ‘necessary belief’ element (*māe māntā hū ki*).

- (27) *māe jāntā hū ki vah cor*  
 I know PRES-1-SG-K□ that he thief  
 {hæ/ ??ho/?hogā}

- {K<sub>□</sub>-PRES-3-SG/ B<sub>◊</sub>-SUBJ-3-SG/ B<sub>□</sub>-FUT-3-M-SG}  
 ‘I know that he {is/ ??may be/ ?must be} a thief.’
- (28) *mā̃ jāntā hū̃ ki vah*  
 I know PRES-1-SG-K<sub>□</sub> that he  
*roz nahātā*  
 everyday shower-IMPV-M-SG  
 {hæ/ ??ho/ ?hogā}  
 {K<sub>□</sub>-PRES-3-SG/ B<sub>◊</sub>-SUBJ-3-SG/ B<sub>□</sub>-FUT-3-M-SG}  
 ‘I know that he {takes/ ??may be taking/ ?must be taking} a shower  
 everyday.’
- (29) *mā̃ jāntā hū̃ ki vah ab so rahā*  
 I know PRES-1-SG-K<sub>□</sub> that he now sleep PROG-M-SG  
 {hæ/ ??ho/ ?hogā}  
 {K<sub>□</sub>-PRES-3-SG/ B<sub>◊</sub>-SUBJ-3-SG/ B<sub>□</sub>-FUT-3-M-SG}  
 ‘I know that he {is/ ??may be/ ?must be} sleeping now.’
- (30) *mā̃ jāntā hū̃ ki usne*  
 I know PRES-1-SG-K<sub>□</sub> that he-OBL-ERG  
*āj ām khāyā*  
 today mango-M-SG eat-PFV-M-SG  
 {hæ/ ??ho/ ?hogā}  
 {K<sub>□</sub>-PRES-3-SG/ B<sub>◊</sub>-SUBJ-3-SG/ B<sub>□</sub>-FUT-3-M-SG}  
 ‘I know that he {has/ ??may have/ ?must have} eaten a mango to-  
 day.’

Having established the scalar positions of the three forms of the Hindi auxiliary *honā* ‘to be’ through examples above, let us now turn to the question of what kind of scalar implicature – a class of generalized conversational implicature based on Gricean maxims of Quantity (Grice: 1989: 26) – the so-called future form of *honā* may induce conversationally. As has been demonstrated by Horn (1989) and Levinson (2000), **O** corner elements on the square of opposition are the main elements responsible for inducing implicatures in a conversational setting. However, in order to ascertain how the selection of this form may induce implicatures in a conversational setting, it would suffice just to check whether the implicatures we ascribe to its scalar position are cancelable or not. As mentioned above, the relation between indicative and presumptive can be seen from the point of view of their scalar position in that the first contains elements of ‘necessary knowledge’, the

second of ‘necessary belief’. In the following example we will, by adding a ‘canceling’ phrase, try to see whether the implicature which we claim the future form of the Hindi auxiliary carries, is cancelable or not. As is clear from the examples in (31), (32), (33) and (34), an added canceling phrase containing a stronger element from corner A (stronger  $hæ = K□p$  and weaker  $hogā = B□p$ ) evaporates the implicature, i.e., “the speaker does not know that  $p$ ”. As can be seen from the following examples, the implicature induced by the weaker form disappears once the stronger element on the scale is added to the phrase. The type of reasoning in these examples is similar to the following: “not only Weaker, Stronger”.

- (31) *vah cor hogā nahĩ, cor hæ*  
 he thief B□-FUT-3-M-SG NEG, thief K□-PRES-3-SG  
 ‘He IS, not must be, a thief.’
- (32) *vah roz nahātā hogā nahĩ,*  
 he evryday shower-IMPFV-M-SG B□-FUT-3-M-SG NEG  
*nahātā hæ*  
 shower-IMPFV-M-SG K□-PRES-3-SG  
 ‘He does take, not must be taking, a shower everyday.’
- (33) *vah ab so rahā hogā nahĩ, so*  
 he now sleep PROG-M-SG B□-FUT-3-M-SG NEG sleep  
*rahā hæ*  
 PROG-M-SG K□-PRES-3-SG  
 ‘He IS, not must be, sleeping now.’
- (34) *usne ām khāyā hogā*  
 he-OBL-ERG mango-M-SG eat-PFV-M-SG B□-FUT-3-M-SG  
*nahĩ, khāyā hæ*  
 NEG eat-PFV-M-SG K□-PRES-3-SG  
 ‘He HAS, not must have, eaten a mango.’

The fact that the *hogā* form (i.e.,  $B□p$ ) is weaker than the *hæ* form (i.e.,  $K□p$ ) can also be established by applying another technique. It has been suggested that in certain cases, by attaching a suspending phrase, it is possible to ascertain whether the implicature induced by any utterance is cancelable or not. “The rationale, of course, is that because implicatures unlike entailments are defeasible, it is possible to assert the contrary, or raise its possibility, without any sense of contradic-

tion.” (Levinson 2000: 81). In the examples (35), (36), (37) and (38), for instance, the suspending element *yā kahē*... ‘rather...’ reveals similar characteristic of the forms of auxiliary in question: the weaker form *hogā* is likely to induce an implicature which is defeasible by adding a stronger element, i.e., the form *hæ* from the scale. The implicature, as in the previous case, is the same, i.e., the speaker does not know that necessarily *p*.

- (35) *vah cor hogā, yā kahē cor hæ*  
 he thief B□-FUT-3-M-SG rather thief K□-PRES-3-SG  
 ‘He must be or rather is a thief.’
- (36) *vah roz nahātā hogā, yā kahē*  
 he everyday shower-IMPFV-M-SG B□-FUT-3-M-SG rather  
*nahātā hæ*  
 shower-IMPFV-M-SG K□-PRES-3-SG  
 ‘He must be taking, or rather does take a shower everyday.’
- (37) *vah ab so rahā hogā, yā kahē so*  
 he now sleep PROG-M-SG B□-FUT-3-M-SG rather sleep  
*rahā hæ*  
 PROG-M-SG K□-PRES-3-SG  
 ‘He must be, or rather is sleeping now.’
- (38) *usne ām khāyā hogā,*  
 he-OBL-ERG mango-M-SG eat-PFV-M-SG B□-FUT-3-M-SG  
*yā kahē khāyā hæ*  
 rather eat-PFV-M-SG K□-PRES-3-SG  
 ‘He must have, or rather has eaten a mango.’

The meanings of tenses should, therefore, be explained in terms of modality since they alone do not seem to have any independent role to play in the TMA system other than just relating the situation to a deictic center, i.e., speech time. All other meanings attributed to them are obtainable either through their combination with aspectual elements, which are exhibited in the sentence in various morphological devices, or through inherent modal meanings.



## 5. Conclusion

At the outset of this paper we began by providing a heuristic argument to define presumptive modality as a distinct category in the domain of the TMA system. It has been demonstrated that there is a need to treat 'presumptive' as a separate category of epistemic modality, rather than to enlist all cases of presumptive modality under a single tense category, namely the 'future'. For a clear understanding of its exact role in the TMA system, it is important to survey ways in which world languages express it. Some languages exhibit presumptive modality through modals, while others try to encode it morphologically, using various future verb forms. It has been shown that the various usages of the future form of the Hindi verb *honā* 'to be' mostly indicate situations in which actions or events are to hold at a time either prior to or contemporaneous with speech time, but generally not at a time subsequent to speech time, as the term 'future' may suggest. It is, therefore, not accurate to classify such usages under the umbrella term 'future'.

If we take a closer look at the tense-aspect system of the Hindi language and consider the role 'modality' overtly plays in assigning meaning to its tenses and aspects, we notice that the distribution of the different tense categories is determined by modality. Modality, thus, turns out to be the sole factor in establishing the scalar meanings overtly carried over by tenses. Following this line of research, it has been demonstrated that the so-called indicatives (IND) tenses sit above all others on the pragmatic scale of tenses, as they carry epistemic necessity. The presumptives (PRESUM) come next and the subjunctives (SUBJ) on the third level on the scale. Roughly put, they must have the following scalar positions: <IND, PRESUM, SUBJ>. This assignment of scalar position might explain all implicatures these categories may induce which are based on their scalar meaning only. For example, selection of PRESUM by the speaker is likely to implicate that she is not in a position to make an utterance using the strongest element from the scale, namely IND. By making an utterance containing PRESUM, the speaker implicates a generalized conversational implicature that she does not know (i.e.  $\neg Kp$ ), but nonetheless believes to be necessarily true (i.e.,  $B\Box p$ ). It has been shown that the implicature induced by the selection of this category is cancelable. The same could be argued along these lines for subjunctives. The paper has argued for the inclusion of modality as the basis for an overall organization of tense-aspect system of a natural language. This might open up new horizons for pragmatic research into the tense-aspect system of a language.

## Notes

1. 'Presumptive', an adjective, is being used here as a noun, and a technical term. By 'presumptive' we mean that grammatical element attached to the main verb which carries modal 'epistemic necessity'. It is also called 'deductive' or 'assumptive' (Palmer 2001: 28) The phenomenon referred to by this term in Hindi is classified by some authors as the 'presumptive tense', although the tense marker in such cases – the future form of *honā* 'to be' – does not always refer to situations in which actions or events hold at a point in time subsequent to speech time. Some authors, however, rightly classify it as a presumptive marker of modality (Montaut 2004: 128).
2. This is the common idea behind the performative theory of truth as developed by Strawson. According to him, "to say a statement is true is not to make a statement about a statement, but rather to perform the act of agreeing with, accepting, or endorsing a statement. When one says 'It's true that it's raining,' one asserts no more than 'It's raining.' The function of [the statement] 'It's true that...' is to agree with, accept, or endorse the statement that 'it's raining.'"
3. As generally conceived in model-theoretic semantics.
4. See Palmer (2001) for a detailed discussion on the topic.
5. Or, more elaborately, 'This is a necessary fact that this is [a picture of] an elephant.'
6. The term 'mood' has been used in linguistics to refer to different sentence types (declarative, imperative, interrogative, subjunctive, optative, etc.) which is a part of the wider and more basic term 'modality'. 'Modality', therefore, seems to be an encompassing term with a tilt towards deep ontological questions. We consider that 'modality' has to do with modal notions which are the basis of every human utterance, and, therefore, semantics of tense and aspect can be fully understood in terms of modality only.
7. For example, Sharma (1983: 101–110) considers presumptive as a class of subjunctive mood rather than a separate category.
8. In the symbolism developed by Hintikka (1962: 10) " $K_a$ " and " $B_a$ " are formal counterparts of the words "a knows that" and "a believes that", respectively. In epistemic logic, the modal operator  $\Box$  and  $\Diamond$  are also used as counterparts of the two. However, we believe that to give a full account of the different epistemic (and alethic modal) states encountered through our heuristic method in section 1, we need to use a combination of the two elements. Thus, through combination four epistemic states can be obtained, namely 'necessary knowledge' ( $K\Box p$ ), 'necessary belief' ( $B\Box$ ), 'possible knowledge' ( $K\Diamond p$ ) and 'possible belief' ( $B\Diamond p$ ).
9. In logic, a distinction is made between alethic and epistemic categories, although they are often expressed in English using the same words. The cat-

egory in (1c), i.e.,  $K\Diamond p$ , is anomalous in the sense that it might be both alethic and epistemic: ‘It is possible that it will rain in Venice tomorrow because it is possible for rain to take place anywhere anytime’ or ‘For all I know, it is possible for rain to take place tomorrow’. The first being an alethic category, the second an epistemic.

10. In Reichenbachian formalism, the letters E, S and R are used to indicate Event Time, Speech Time and Reference Time, respectively. Event time is a point on the time line at which the event reported in a sentence takes place, Speech Time is a point at which speaker utters the sentence, and Reference Time is a reference internal to the situation in which an event occurs (for example at 6 o’clock, on Sunday, before he left, etc.). The dash line, ‘—’, stands for the time line. E—S, therefore means that the event time is prior to the speech time. A comma between the letters indicates that the points on the time line represented by capital letters are contemporaneous. For a detailed discussion on the topic, see for example, Reichenbach (1947: 287–298), Comrie (1985), Hornstein (1990), Giorgi and Pianesi (1997: 27).
11. On the topic of aorist tense in Hindi see Davison (2002: ) and Montaut (2004: 103–110).
12. See Comrie (1985: 44) and Dahl (1985: 103) for a description of the distinct epistemological nature of the future tense.
13. Some linguists claim that there are only two tenses in English: non-past (present) and past (indicated by ablaut or ending in -ed). According to them there is no future tense in English – only a modal *will* expressing future. Others consider *will* a future marker and add two more tenses: future (obtained through modal *will*) and future-in-past (obtained through the past form *would*). Comrie (1985) maintains that there are two uses of the future in English: one makes a clear prediction about some future state of affairs whose truth can be tested at the future time whereas the second is by nature modal. We believe that, apart from this questionable situation of the future tense in English, the epistemic foundation of the future tense in general is totally different from that of past and non-past tenses which can be understood in terms of modality only.
14. Many languages, such as Hindi/Urdu and Italian, make use of the future to express this modality. See also Palmer (2001: 104).
15. The term coined by Grice in the fifties (see 1989), and further elaborated and modified by, among others, Gazdar (1979), Horn (1989) and Levinson (2000), to refer to that part of meaning which, roughly put, is ‘implicated’ by the utterer through ‘what he has said’.
16. Giorgi and Pianesi (1999: 29) provides the following inventory of the tenses:

|         |   |       |   |       |       |
|---------|---|-------|---|-------|-------|
| Present | : | (S,R) | • | (R,E) | S,R,E |
| Past    | : | (R—S) | • | (E,R) | E,R—S |
| Future  | : | (S—R) | • | (R,E) | S—R,E |

|                  |   |       |   |       |       |
|------------------|---|-------|---|-------|-------|
| Present Perfect  | : | (S,R) | • | (E—R) | E—S,R |
| Future perfect   | : | (S—R) | • | (E—R) |       |
| Past Perfect     | : | (R—S) | • | (E—R) | E—R—S |
| Future in past   | : | (R—S) | • | (R—E) |       |
| Proximate future | : | (S,R) | • | (R—E) | S,R—E |
| Distant future   | : | (S—R) | • | (R—E) | S—R—E |

17. For the sake of simplicity, we will be calling this form ‘the future form’ throughout this paper. However, as it only very rarely refers to a future point in time, it should be considered as a marker of presumptive modality rather than a ‘future form’.
18. For instance, the combinations of the Hindi auxiliary *honā* ‘to be’ with imperfective, continuous and perfective aspects are classified by MacGregor (1977: 29) as imperfective, continuous and perfective future, respectively.
19. We have tried to gloss only those items which are essential to explain the point in discussion. In providing glosses, the following abbreviations are used: ?? = pragmatically anomalous, 1 = first person, 3 = third person, CMPL = completive, CONT = continuative, DUR = durative, EMP = emphatic, F = feminine, FREQ = frequentative, FUT = future, IMPFV = imperfective, INCE = inceptive, IND = indicative, M = masculine, OBL = oblique, PASV = passive, PFV = perfective, PRES = present, PRESUM = presumptive, PROG = progressive, SUBJ = subjunctive.
20. Despite the widely-held view about the necessity to make a distinction between grammatical aspect and lexical aspect (*Aktionsart*), “recently, as scholars have come to appreciate the inter-relation between viewpoint and situation structure, use of the term has broadened to include the temporal properties of the situations themselves, internal events or *Aktionsart*.” (Smith 1991: 3) Consequently, some authors on Hindi grammar have made proposals to include telic in the class of grammatical aspects: “...in addition to the two traditionally recognized aspect categories, the perfective and the imperfective, a third category of grammatical aspect, the telic, must be distinguished on distributional grounds.” (Agha 1998: 126).
21. Comrie (1976: 25) classifies aspect in the following manner:
  - (A) Perfective
  - (B) Imperfective
    - (B1) Habitual
    - (B2) Continuous
      - (B2a) Non-progressive
      - (B2b) Progressive
22. Masica (1991: 292), Shapiro (1989: 55), Kachru (2004: 146).
23. It is possible to find differences between ‘progressive’ and ‘continuous’ in some languages – the first refers to a dynamic quality of action, whereas the second to a state of the agent. However, despite some minor differences be-

tween their aspectual meanings, the two terms have been used interchangeably in Hindi grammatical tradition to refer to the same aspect – some preferring ‘continuous’ (Masica and McGregor), others ‘progressive’ (Kachru, Montaut and Shapiro). Some authors (e.g., Kellogg 1965: 261), however, prefer to consider this construction under compound verbs.

24. Kachru predicts that it “...occurs only in its imperfect participle form...” (2004: 154). The fact is that, being itself an imperfective tense, it cannot have a perfective marker. Consider the following example in which it does not have an imperfective participle:

*kal se vah roz mandir jāyā*  
 tomorrow from he everyday temple go-PFV-M-SG  
*karegā*  
 FREQ-FUT-M-SG

‘From tomorrow he will be visiting the temple everyday.’

25. Some authors prefer to describe the phenomenon slightly differently. According to them the perfective participle in Hindi is obtained by adding a zero morpheme rather than an *-ā*. See for example Masica (1991: 293).
26. A Hindi sentence having the perfective aspect and the future auxiliary, like the example in (11), is mistakenly considered to have the same meaning as in an English sentence such as “Ramu will have gone to Venice tomorrow”. To get a sentence in Hindi which could have the similar meaning to that of the English future perfect, it is necessary to use a completive aspect, as can be seen in the following example.

*rāmū tab tak venis jā cukā hogā*  
 Ramu then by Venice go CMPL-PFV-M-S FUT-M-S

‘Ramu will have gone to Venice by then.’

27. Other terms to indicate the verb with the same characteristics are anti-transitive and original passive.
28. We do not enter into the details of the Square of Opposition as it has been widely discussed in logic for over two millennia. Its use in describing scalar implicature is due to work by Horn (1989). For an excellent discussion on the topic see Levinson (2000: 64–72).
29. The corners on the Square of opposition are presented in the literature in the following manner (Horn 2004):

A =  $\Box p \leftrightarrow \neg \Diamond \neg p \quad \forall x(Fx \rightarrow Gx)$  E.g. All/every F is G

I =  $\Diamond p \leftrightarrow \neg \Box \neg p \quad \exists x(Fx \& Gx)$  E.g. Some F is/are G

E =  $\neg \Diamond p \leftrightarrow \Box \neg p \quad \forall x(Fx \rightarrow \neg Gx)$  E.g. No F is G

O =  $\neg \Box p \leftrightarrow \Diamond \neg p \quad \exists x(Fx \& \neg Gx)$  E.g. Not every F is G, Some F is not G

30. Although *ho* is the only possible auxiliary to be utilized to express epistemic possibility in Hindi, due to some noticeable influence of the English language into the use of the Hindi subjunctive, it is possible to encounter the *hæ* form, especially in the Hindi register of speakers who are also fluent in English.

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